ABSTRACT OF THE DISCLOSURE

An apparatus and a method for testing the integrity of fuel tanks for leaks are disclosed. A microprocessor controls the pressurization of the fuel tank and then selectively allows the gas within the fuel tank to decay through any leaks within the tank or through the combination of the leaks within the tank and a reference orifice. By computing and comparing the time required for the tank pressure to decay between predetermined pressure levels due to any tank leaks with a standard decay time, a determination can be made whether the leakage rate through the tank is acceptable. Greater resolution, if necessary, is provided by computing the ratio of the time required for the tank pressure to decay between predetermined pressure levels through the combination of any tank leaks and a reference orifice versus only through the tank leaks and compares same against a standard ratio to determine whether the tank leakage rate is acceptable.